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09/878,405	06/12/2001	Marco Nahmias Nanni	07040.0091	2314

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EXAMINER
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MULCAHY, PETER D

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 07/19/2005

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**MAILED**  
JUL 19 2005  
**GROUP 1700**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/878,405  
Filing Date: June 12, 2001  
Appellant(s): NANNI ET AL.

\_\_\_\_\_  
Anthony Hartman  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12/20/04.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

This appeal involves claims 55-60 and 62-107.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

Varughese et al., *Chemical Attraction Between Epoxidized Natural Rubber : Studies on Cure Characteristics and Low Temperature Dynamic Mechanical Properties*, Journal of Applied Polymer Science, Vol. 44, pp. (1847-1855).

Japanese Patent Publication No. 07-090123 A (translation).

#### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 55-60 and 62-107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varughese et al., *Chemical Attraction Between Epoxidized Natural Rubber : Studies on Cure Characteristics and Low Temperature Dynamic Mechanical Properties*, Journal of Applied Polymer Science, Vol. 44, pp. (1847-1855) hereafter Varughese or Japanese Patent Publication No. 07-090123 A hereafter JP'123.

Varughese studies the chemical interaction between epoxidized natural rubber and silica. The epoxidized natural rubber component of Varughese anticipates the claimed "crosslinkable elastomeric material" containing epoxide groups. The silica ingredient of Varughese contains the claimed hydroxyl groups (see p. 1850) and

anticipates the "active filler" ingredient claimed. The crosslinking of the rubber composition is carried out in the absence of additional crosslinking agents.

The language regarding the "effective degree of crosslinking" is seen to be either anticipated or rendered obvious from the teaching. This is a property limitation and it is appropriate to follow an *In re Fitzgerald*, 619 F. 2<sup>nd</sup> 67, 205 USPQ 594 (CCPA 1980) rationale in ascertaining the metes and bounds of the claimed invention. This is to say that each of the compositional limitations are met and there is no reason to believe that the claimed invention would not possess properties which would anticipate or render obvious the property. To the contrary, one would reasonably expect the prior art to possess properties which would render obvious or anticipate the claims because the same chemicals mixed and processed under the same conditions share the same properties. This is particularly relevant to claim 62 where the composition is claimed and there are no molding steps.

The only difference between the claimed subject matter and the prior art is the process for producing tires and particular process steps directed to molding the rubber compositions into tire articles. These steps are obvious from this teaching. The introduction states that the compositions have utility in "oil-resistant, air-impermeable and highly damping" applications. One of ordinary skill in the art would instantly appreciate that the rubber composition examined would find utility in tire applications. Tire compositions share the ingredients and properties of those examined in Varughese. Further, the steps claimed with respect to molding the rubber composition into tires are conventional steps used when formulating tire articles. This is to say that

Art Unit: 1713

one of ordinary skill reading Varughese would immediately appreciate the use of the rubber composition in tire applications and follow the claimed steps in molding the rubber composition into tire articles.

The dispersion index limitation set forth in claim 93 is presumed to be anticipated or obvious from the art as well. The dispersion index is not mentioned in the art. The art does show the same active filler mixed with the same rubber component in the same amount under the same conditions. It is reasonable to presume that it would share the same dispersion index. There is no reason to believe that it would not.

JP'123 teaches tire rubber compositions which incorporate the claimed epoxidized natural rubber in conjunction with the hydroxyl containing filler ingredient, see [0013], [0017] and [0018]. Once again, the "effective degree of crosslinking" limitation is not mentioned in the art. The rationale advanced supra applies here as well.

The difference between the claimed invention and the art is that the art mentions the incorporation of additional crosslinking agents. The claims are obvious from this teaching because the limitation "essentially without additional crosslinking agents" is seen to have a degree of flexibility. This is to say that the amounts of curing agents suggested in the art are low enough so as to fall within the scope of "essentially without." It should further be noted that, the crosslinking agent is not identified as a critical component.

#### **(10) Response to Argument**

Appellants attempt to predicate the patentability of the claimed invention upon the limitation of a property that is not mentioned in the prior art. Appellants attempt to distinguish the claimed invention by arguing that the prior art has an unacceptably low degree of crosslinking. This is not persuasive.

Appellants identify the language in Varughese "[g]enerally, the interaction between a filler and a polymer are not high enough so that cross-linking can be detected through a rheometer torque rise" to support their contention that the degree of crosslinking is lower than 65% as claimed. This is not persuasive and does not support the argument advanced by appellant. A fair reading of the disclosure shows that the portion cited by appellants is what one would have expected prior to the study and contrary to the findings. In fact, the next paragraph describes the mixing of the epoxy rubber and the reactive filler and states "[h]owever, a comparatively good number of cross-links (considerable rise in rheometric torque, nonsticky and transparent vulcanizates) are present in the silica-filled vulcanizates even in the absence of any conventional curing agents." Thus, the point of the disclosure is to report the increase in crosslinking between the active filler and epoxy rubber. It is further reasonable to expect this increase in crosslinking to render obvious or anticipate the "degree of crosslinking" limitation.

Appellants then attempt to estimate the degree of crosslinking in Varughese from figure 1. These estimations are of no probative value. There is no rationale as to how these values have been calculated. Appellants state that they "have been able to calculate the effective degree of crosslinking" but have done nothing of the sort. These

Art Unit: 1713

values are identified as estimates and not supported by any rationale. As such, they are moot.

Appellants rely upon Examples 13 and 14 from the specification to show that mere mixing does not provide the degree of crosslinking claimed. This is not the case. Examples 13 and 14 are designed to show that "compositions containing a mixture of silica and carbon black as filler are capable of crosslinking effectively, provided that the silica is predominant relative to the total amount of filler added." The degree of crosslinking only falls when there is a predominant amount of carbon black used. The Varughese disclosure only uses carbon black in minor amounts relative to the silica. Appellants' reliance upon these examples does not support the patentability of the claimed invention.

With respect to the JP'123 document, appellants argue that the document calls for the incorporation of 0.7phr curing promoter and 1.7phr sulfur to achieve crosslinking. This is not persuasive. The amounts shown are seen to fall within the scope of "essentially without crosslinking agents."


Appellants argue that the dispersion index claimed in claim 93 is not met by the prior art. This is not persuasive. Once again, the same ingredients are shown to be mixed under the same conditions in the same amounts. As such, it is reasonable to presume that the property limitation is met. Appellants have failed to show that the art fails to meet the limitation. The fact that the art does not mention the limitation does not mean that the property is not present.



Art Unit: 1713

For the above reasons, it is believed that the rejections should be sustained.

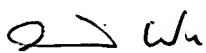
Respectfully submitted,



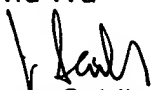
Peter D. Mulcahy  
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July 14, 2005

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Art Unit: 1713